


① Name the parent function and transformations for each 1.4

function below. Sketch a graph without a calculator.


parent function $y=x^2$
Quadratic

④ $f(x) = 3x^2 + 2$
up two
vert. stretch
by 3



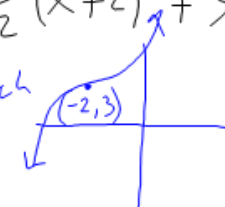
parent: Square root

⑤ $f(x) = \sqrt{x-3} - 1$
transformation
D: $[3, \infty)$
R: $[-1, \infty)$
+3
down 1

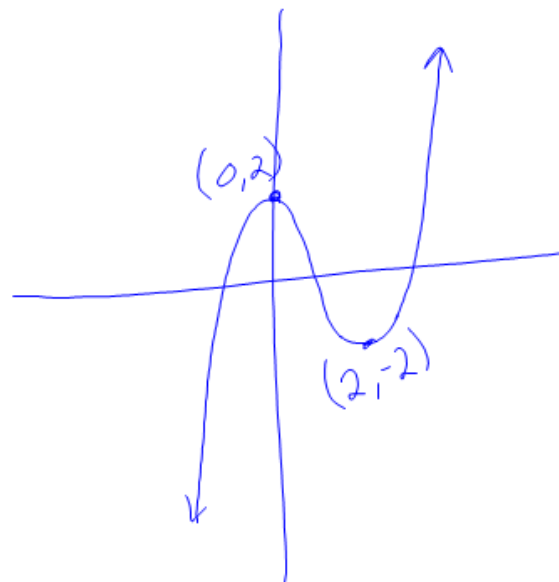


parent: Cubic

⑥ $f(x) = \frac{1}{2}(x+2)^3 + 3$
up 3
vert stretch
by 1/2
left 2



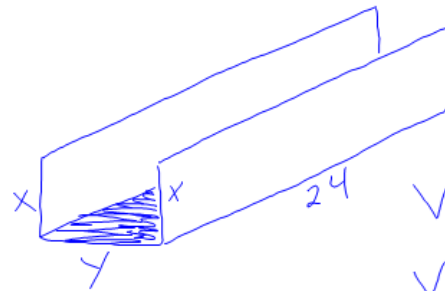
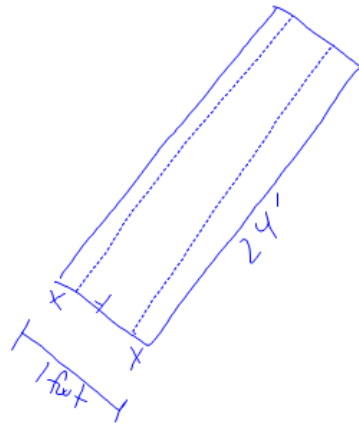
② Sketch the graph using a calculator and find the extrema to two decimal places. Also notate the intervals the function is increasing and decreasing. $f(x) = x^3 - 3x^2 + 2$



Increasing: $(-\infty, 0)$
 $(2, \infty)$

Decreasing: $(0, 2)$

- ③ A gutter is to be made from a 24 foot long sheet of aluminum. The sheet is 1 foot wide and the sides will be folded up to make the gutter. Find the length x to maximize the volume.



$$V = x \cdot y \cdot 288$$

$$V = x \cdot y \cdot 24$$

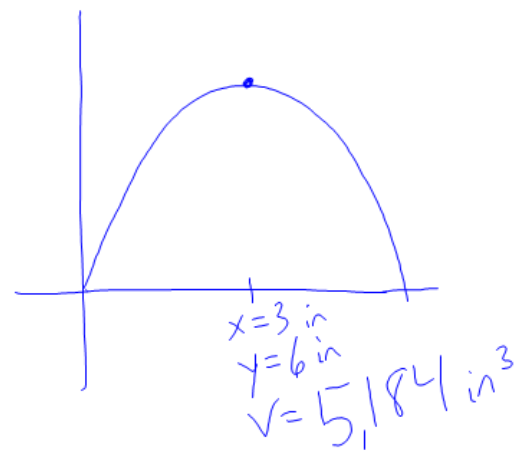
$$A = x \cdot y$$

$$y = 1 - 2x$$

$$y = 12 - 2x$$

$$V = (x)(12 - 2x)(288)$$

$$0 < x < 6$$



p.86 Chapter test Skip last one

UN Test

• Linear equations (Different forms
+ slopes)

• Definition of Function

• Domain

• max/min, decreasing/increasing

• Combinations & compositions

• Difference quotients

• Inverses

• Transformations

• Application problem

Quiz - Answers

① $f(x) = x^2 - x + 1$

$$f(x+h) = (x+h)^2 - (x+h) + 1$$

$$= x^2 + 2xh + h^2 - x - h + 1$$

1pt - setup
1pt - solution

\Rightarrow

$$\frac{\cancel{x^2} + 2xh + h^2 - \cancel{x} - h + 1 - \cancel{x^2} + \cancel{x} - 1}{h}$$

$$\Rightarrow \frac{2xh + h^2 - h}{h} = \boxed{2x - 1 + h}$$

② $f(x) = \sqrt{3x-4}$ $g(x) = x^2 + 1$

① Find $\left(\frac{g}{f}\right)(x)$ & domain $\Rightarrow \boxed{\frac{x^2 + 1}{\sqrt{3x-4}}}$ 1pt

Domain

$$3x-4=0$$

$$x = \frac{4}{3}$$

$$\boxed{x > \frac{4}{3}}$$
 2pt

⑥ $(f \circ g)(x) = \sqrt{3(x^2+1)-4} = \boxed{\sqrt{3x^2-1}}$ 1pt

$(g \circ f)(x) = (\sqrt{3x-4})^2 + 1 = 3x-4+1 = \boxed{3x-3}$ 1pt

⑦ $f(x) = \sqrt{3x-4} \rightarrow x = \sqrt{3y-4} \rightarrow \boxed{y = \frac{1}{3}x^2 + \frac{4}{3}}$ yes function 1pt

$g(x) = x^2 + 1 \rightarrow x = \sqrt{y-1} \rightarrow \boxed{y = \pm \sqrt{x-1}}$ not function 1pt